CARRIER PHASE ESTIMATION BASED ON SINGLE-AXIS CONSTANT MODULUS COST CRITERION AND BUSSGANG CRITERIA

ABSTRACT OF THE DISCLOSURE

Carrier phase recovery employs a single-axis blind cost criterion from the Bussgang class of functions, and its stochastic gradient, to generate a carrier phase error used to adjust a received and demodulated signal to near baseband. For one implementation, the estimate is derived in accordance with a Single-Axis Constant Modulus (SA-CM) criterion and its stochastic gradient via a SA-CM algorithm (SA-CMA). The carrier phase error is then used to adjust the carrier frequency and phase of the received and demodulated signal toward the frequency and phase of the carrier used to modulate the transmitted symbols, driving the carrier phase error to zero. The values used for the phase recovery may be either i) an IIR filtered signal, ii) a processed signal (e.g., decisions for the signal symbols), or iii) an equalized and processed signal.